



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/535,671	05/19/2005	Susumu Yamanobe	272235US0PCT	7666
22850 7590 12/17/2007 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER VERDERAME, ANNA L	
			ART UNIT 1795	PAPER NUMBER
			NOTIFICATION DATE 12/17/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdoCKET@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/535,671	<b>Applicant(s)</b> YAMANOBE ET AL.	
	<b>Examiner</b> Anna L. Verderame	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 19 May 2005 and 01 February 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 10-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 10-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>02/01/2006, 05/19/2005</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 5-6, 10-13, 18-20, and 22-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitayama et al. JP-2000-081511(machine translation enclosed) in view of Busman et al. 5,541,235.

Kitayama et al. teaches an IR cut filter having a filter layer containing a diimonium salt compound expressed by formula 2. In formula 1, each ring A,B may have 1 to 4 substituents, R1 to R8 are 1-8C substituents and at least one of them is a cyan-substituted alkyl group, and the rest are alkyl groups, X is an anion and N is an integer of 1 or 2(abstract). X is preferably a **halogeno** alkyl sulfonic acid anion such as **trifluoro methansulfonic acid** ion, toluenesulfonic acid anion or alkylarylsulfonic acid anion(0013). Acceptable solvents include solvents of a halogen system, an alcoholic system, a **ketone system**, an ester system, an aliphatic hydrocarbon system, an aromatic hydrocarbon system or a mixture of two or more of the above(0032). See also (0038). The examiner takes the disclosure that R1 to R8 can be a 1-8C substituent to include the phenyl and phenethyl groups of claim 8 which consist of 6 and 8 carbon atoms respectively and the phenylalkylene group of claim 7.

Art Unit: 1795

Busman teaches a **cationic dye** in a ketone solvent wherein the cationic dye has a counterion which comprises a linear, branched, or cyclic highly fluorinated alkylsulfonyl methide or fluorinated **alkyl sulfonyl imide**(abstract). The solubility of cationic dye materials in organic solvents and particularly in low polarity solvents such as **methyl ethyl ketone** can be improved using the particular class of counterions in association with the cations(3/20-24). Broad disclosure of cationic dyes including those recognized in the dye and photographic industries(3/29-39). Trifluoromethyl group of claim 3 is disclosed at (4/39). Pentafluorethyl group of claim 3 is disclosed at (4/36). Hexafluoropropylene group is disclosed at (4/50). Reduction of coating defects is also achieved due to the solubility of the salts in the wide array of solvents(4/58-62).

It would have been obvious to one of ordinary skill in the art to modify the filter layer of Kitayama et al. comprising a diimonium salt dissolved in for example a ketone-type solvent by replacing the halogeno alkyl sulfonic acid anion such as trifluoromethanesulfonic acid ion taught by Kitayama et al. with any one of the highly fluorinated alkyl sulfonyl imide counterions taught by Busman et al. based on the similarity between the two counterions and based on the disclosure of Busman et al. that the highly fluorinated alkyl sulfonyl imide counterions may be used with cationic dyes generally, and with the reasonable expectation of increasing the solubility of the cationic dye and thereby decreasing the occurrence of coating defects as taught by Busman et al..

3. Claims 14-17 and 28-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitayama et al. JP-2000-081511 in view of Busman et al. 5,541,235 as applied above and further in view of Mihara et al. 5,605,732.

The examiner argues that the disclosure that R1 to R8 can be a 1-8C substituent to include the phenyl and phenethyl groups which consist of 6 and 8 carbon atoms respectively and the phenylalkylene. However, one may argue that this disclosure is not explicit enough.

Mihara teaches aminium salt compounds (equivalent to diimonium salt compounds) as represented by formula I (3/45-55) wherein examples of monovalent organic residues that are preferred for each of the groups R<sub>1</sub>-R<sub>8</sub> include benzyl, phenethyl and in general aralkyl groups(3/45-4/27).

It would have been obvious to one of ordinary skill in the art to modify the filter layer of Kitayama et al. comprising a diimonium salt dissolved in for example a ketone-type solvent by replacing the halegeno alkyl sulfonic acid anion such as trifluoro metahnsulfonic acid ion taught by Kitayama et al. with any one of the highly fluorinated alkyl sulfonyl imide counterions taught by Busman et al. based on the similarity between the two counterions and based on the disclosure of Busman et al. that the highly fluorinated alkyl sulfonyl imide counterions may be used with cationic dyes generally, and with the reasonable expectation of increasing the solubility of the cationic dye and thereby decreasing the occurrence of coating defects as taught by Busman et al.. Further it would have been obvious to substitute the specific ammonium cations disclosed by Mihara et al. based on the substantial similarities between those cations

and those disclosed by Kitayama et al. and with the reasonable expectation of forming a useful filter layer.

4. Claim 4 and 21 rejected under 35 U.S.C. 103(a) as being unpatentable over Kitayama et al. JP-2000-081511 in view of Busman et al. 5,541,235 as applied above and further in view of Koshar 4,429,093.

Kitayama et al. JP-2000-081511 in view of Busman et al. 5,541,235 as applied above does not teach the limitations of claim 4.

Koshar teaches perfluoroaliphaticdisulfonimides counterions (anions) as represented in formula 1 (1/51-60). In figure 1 R<sub>f</sub> is a perfluoroalkylene having 2 to 4 backbone or catenary carbon atoms or perfluorocycloalkylene having 4 to 7 preferably 6 ring atoms(1/60-63). M is a cation with a valence equal to n(1/66-2/6).

The teachings of Koshar establish that perfluoroaliphaticdisulfonimides exist and that they are used as a negatively charged counterions. The chemical similarity between the anions taught by Koshar at 1/52-63 and both the halogeno alkyl sulfonic acid anion such as trifluoro metahnsulfonic acid ion taught by Kitayama et al. and the fluorinated alkyl sulfonyl imide counterions taught by Busman are noted.

It would have been obvious to one of ordinary skill in the art to modify the filter layer of Kitayama et al. comprising a diimonium salt dissolved in for example a ketone-type solvent by replacing the with the counterions taught by Koshar at (1/52-63) based on the chemical similarity between these counterions and those disclosed by both Busman et al. and Kitayama et al. and based on the disclosure of Busman et al. that the fluorinated alkyl sulfonyl imide counterions may be used with cationic dyes

Art Unit: 1795

generally, and with the reasonable expectation that the counterions taught by Koshar will effectively neutralize the positive charge of the diimonium compound and will also increasing the solubility of the cationic dye thereby decreasing the occurrence of coating defects as taught by Busman et al..

### ***Conclusion***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anna L. Verderame whose telephone number is (571)272-6420. The examiner can normally be reached on M-F 8A-4:30P.

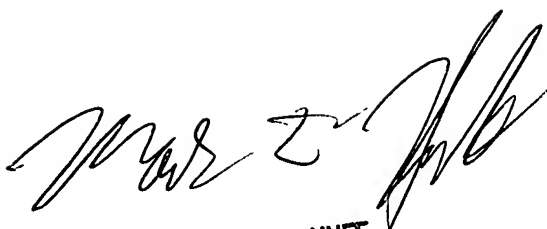
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on (571)272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Art Unit: 1795

ALV

HLV



MARK F. HUFF  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700